Claims

What is claimed is:

1. A device, comprising:

first and second optical resonators each configured to support whispering gallery modes, wherein said first and said second optical resonators are optically coupled to allow for light coupling from a first whispering gallery mode in said first optical resonator to a second whispering gallery mode in said second optical resonator, and

wherein at least one of said first and said second optical resonators is tunable in response to a control signal to change a property of an optical signal passing through said first and said second optical resonators.

2. The device as in claim 1, wherein said tunable optical resonator includes an electro-optical material and the control signal is an electrical control signal.

3. The device as in claim 2, wherein said tunable optical resonator includes a lithium niobate crystal.

4. The device as in claim 1, wherein said second resonator includes silica.

5. The device as in claim 4, further comprising an optical coupler that is evanescently coupled to said second resonator.

6. The device as in claim 5, wherein said optical coupler is a fiber coupler.

7. The device as in claim 5, wherein said optical coupler includes a waveguide.

8. The device as in claim 5, wherein said optical coupler includes a photonic gap material.

9. The device as in claim 5, wherein said optical coupler includes a prism.

10. The device as in claim 1, wherein both of said first and said second optical resonators are tunable in response to respective control signals to change a property of an optical signal passing through said first and said second optical resonators.

11. The device as in claim 1, wherein each of said first and said second optical resonators includes an electro-optic material.

12. The device as in claim 1, further comprising a third optical resonator configured to support whispering gallery modes, wherein third optical resonator is optically coupled to at least one of said first and said second optical resonators.

13. The device as in claim 12, wherein said third optical resonator is tunable in response to a control signal.

14. The device as in claim 1, wherein one of said first and said second optical resonators is made of at least a part of a spheroid to support whispering-gallery modes circulating along an equator in a circular cross section of said spheroid and around a short ellipsoid axis of said spheroid.

15. The device as in claim 14, wherein said one resonator has a disk shape.

16. The device as in claim 1, wherein one of said first and said second optical resonators is made of at least a part of a

sphere to support whispering-gallery modes circulating along an equator.

17. The device as in claim 16, wherein said one resonator has a disk shape.

18. The device in claim 1, wherein one of said first and said second optical resonators changes a refractive index after exposure to radiation.

19. The device as in claim 18, wherein said one optical resonator is made of Ge-doped silica.

20. A method, comprising:

optically coupling first and second optical resonators via evanescent fields, each optical resonator supporting whispering gallery modes, at least one of the first and the second optical resonators being dynamically tunable to change optical transmission in response to a control signal; and

changing the control signal to adjust optical transmission through both said first and second optical resonators.

21. The method as in claim 20, wherein the one of the first and the second optical resonators includes an electro-optic

material, and wherein the control signal is an electrical voltage applied to the electro-optic material.

22. The method as in claim 21, wherein the first optical resonator is made of a radiation-sensitive material that changes a refractive index when exposed to radiation and the second optical resonator is made of the electro-optic material.

23. A device, comprising:

first and second optical resonators each configured to support whispering gallery modes, wherein said first and said second optical resonators are optically coupled to allow for light coupling from a first whispering gallery mode in said first optical resonator to a second whispering gallery mode in said second optical resonator, and

wherein said first optical resonator is made of an electro-optic material to be tunable in response to a control signal to change a property of an optical signal passing through said first and said second optical resonators, and wherein said second optical resonator is made of a radiation-sensitive material that changes a refractive index when exposed to sensitizing light at a sensitizing wavelength.